



1639

PATENT  
ATTORNEY DOCKET NO.: INVIT1250-5

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**RECEIVED**

Applicant: Jay M. Short  
Application No.: 09/835,096  
Filed: April 12, 2001  
Title: MORPHATIDES: NOVEL SHAPE AND STRUCTURE LIBRARIES

Art Unit: 1639  
Examiner: Unassigned

JUL 2 2 2003

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

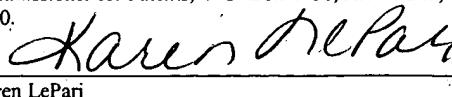
**TRANSMITTAL SHEET**

Transmitted herewith for the above-identified application please find:

1. Information Disclosure Statement ( 2 pages);
2. Form PTO-1449 (6 pages);
3. Sixty-Six (67) References; and
4. Return Receipt Postcard.

CERTIFICATION UNDER 37 CFR §1.8

I hereby certify that the documents referred to as enclosed herein are being deposited with the United States Postal Service as first class mail on July 9, 2003, in an envelope addressed to: Mail Stop DD, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

  
Karen LePari

In re Application of:  
Jay M. Short  
Application No.: 09/835,096  
Filed: April 12, 2001  
Page 2

PATENT  
Attorney Docket No.: INVIT1250-5

No fee is deemed necessary in connection with the filing of this paper. However, if any fee is required, the Commissioner is hereby authorized to charge the amount of this fee, or credit any overpayments, to Deposit Account No. 50-1355. A copy of the Transmittal Sheet is enclosed.

Respectfully submitted,



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**USPTO CUSTOMER NUMBER 28213**



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**INFORMATION DISCLOSURE STATEMENT**

Sir:

In accordance with 37 C.F.R. 1.97, Applicants bring to the Examiner's attention the related parent patent application, U.S. Serial No. 08/839,468, filed April 14, 1997.

Applicants respectfully request that the references supplied in compliance with 37 C.F.R. § 1.97 in the above-referenced parent application, as well as those cited during its examination, be made of record in the present case. For the convenience of the Examiner, these references are listed on the attached Form PTO-1449 and a copy of each is enclosed herewith.

CERTIFICATION UNDER 37 CFR §1.8

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Karen LePari

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PATENT  
Attorney Docket No.: INVIT1250-5

This Information Disclosure Statement is being filed prior to receipt of a First Office Action on the merits. Therefore, no fee is deemed necessary. However, the Commissioner is hereby authorized to charge any amounts required by this filing, or credit any overpayment, to Deposit Account No. 50-1355. A copy of the Transmittal Sheet is enclosed.

Respectfully submitted,



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<b>FORM PTO-1449</b> U.S. Department of Commerce Patent and Trademark Office 	<b>Docket No.:</b> INVIT1250-5	<b>Serial No.:</b> 09/835,096
	<b>Applicant(s):</b> Jay M. Short	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>	<b>Filing Date:</b> 04/12/2001	<b>Group Art Unit:</b> 1639

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**U.S. PATENT DOCUMENTS**

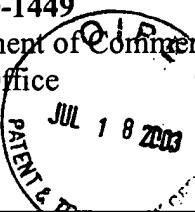
EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
	AA	4,959,309	09/25/1990	Dattagupta et al.	435	6	
	AB	5,207,163	12/1993	Gold et al.	435	6	
	AC	5,270,170	12/14/1993	Schatz et al.	435	7.37	
	AD	5,475,096	12/1995	Gold et al.	536	26	
	AE	5,510,240	04/23/1996	Lam et al.	435	7.1	
	AF	5,660,985	08/1997	Pieken et al.	435	6	
	AG	5,683,867	11/1997	Biesecker et al.	435	6	
	AH	5,705,337	01/1998	Gold et al.	435	6	
	AI	5,739,305	04/23/1996	Cubicciotti et al	536	23.1	

**FOREIGN PATENT DOCUMENTS**

EXAM. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION (YES/NO)
	AJ	2 183 661	06/1987	UK	C12N	15/00	
	AK	WO 89/06694	07/1989	WO	C12P	21/00	
	AL	WO 91/14696	10/1991	WO	C07H	17/00	
<i>Duf</i>	AM	WO 92/14843	09/1992	WO	C12Q	1/68	

EXAMINER	DATE CONSIDERED
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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>FORM PTO-1449</b> U.S. Department of Commerce Patent and Trademark Office 	<b>Docket No.:</b> INVIT1250-5	<b>Serial No.:</b> 09/835,096
	<b>Applicant(s):</b> Jay M. Short	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>	<b>Filing Date:</b> 04/12/2001	<b>Group Art</b> 1639
<b>RECEIVED</b> JUL 22 2003		

<i>dup</i> ✓	AN	WO 95/07364	03/1995	WO	C12Q	1/68	
	AO	WO 95/20591	08/1995	WO	C07F	5/02	
<i>dup</i> ✓	AP	WO 95/08003	03/1995	WO	C12Q	1/68	
<i>dup</i> ✓	AQ	WO 95/22625	08/1995	WO	C12Q	1/68	
<i>dup</i> ✓	AR	WO 95/31429	11/1995	WO	C07C	205/00	
	AS	WO 96/04403	02/1996	WO	C12Q	1/68	
<i>dup</i> ✓	AT	WO 96/09316	03/1996	WO	C07H	21/02	
<i>dup</i> ✓	AU	WO 96/08274	03/1996	WO	A61K	47/48	
<i>dup</i> ✓	AV	WO 96/27605	09/1996	WO	C07H	21/02	

#### OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

	AW	Abelson, J. "Directed Evolution of nucleic acids by independent replication and selection" <i>Science</i> 249: 488-489 (1990)
	AX	Bartel, D.P. and Szostak, J.W. "Isolation of new ribozymes from a large pool of random sequences" <i>Science</i> 261:1411-1418 (1993)
	AY	Beaudry, A.A. and Joyce, G.F "Directed Evolution of an RNA Enzyme" <i>Science</i> 257: 635-641 (1992)
	AZ	Cech, T.R. "The chemistry of self-splicing RNA and RNAEnzymes" <i>Science</i> 236: 1532-1539 (1987)
	BA	Conrad, R. et al. "Isozyme-specific inhibition of protein kinase C by RNA aptamers" <i>J. Biol. Chem.</i> 269: 32051-32054 (1994)

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FORM PTO-1449 U.S. Department of Commerce Patent and Trademark Office	OCT 18 2003 Applicant(s): Jay M. Short	Serial No.: 09/835,096 RECEIVED JUL 22 2003 TECH CENTER 1600/2900
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date: 04/12/2001	Group Art Unit: 1639

✓ BB	Crouch, G.J. and Eaton, B.E. "Synthesis of 2'-deoxyuridine nucleosides with appended 5-position carbonyl cross-linking groups" <i>Nucleosides &amp; Nucleotides</i> 13: 939-944 (1994)
✓ BC	Dewey, T.M. et al. "New uridine derivatives for systematic evolution of RNA ligands by exponential enrichment" <i>J. Am. Chem. Soc.</i> 117: 8474-8475 (1995).
✓ BD	Ellington, A.D. and Szostak, J. W. Abstract of papers presented at the 1990 meeting on RNA Processing. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, p226 (1990)
✓ BE	Freier, S.M. et al. "Mutational SURF : A strategy for improving lead compounds identified from combinatorial libraries" <i>Bioorganic &amp; Medicinal Chemistry</i> 4:717-725 (1996)
✓ BF	Jensen, K.B. et al. "Characterization of an in vitro selected RNA ligand to the HIV-1 rev protein" <i>J. Mol. Biol.</i> 235:237-247 (1994)
✓ BG	Joyce, G.F. "Amplification, mutztion and selection of catalytic RNA" <i>Gene</i> 82:83-87 (1989)
✓ BH	Joyce, G.F. and Inoue, T. "A novel technique for the rapid preparation of mutant RNAs" <i>Nucleic Acids Research</i> 17:711-714 (1989)
✓ BI	Kinzler, K.W. and Vogelstein, B. "Whole genome PCR: Application to the identification of sequences bound by gene regulatory proteins" <i>Nucleic Acids Research</i> 17:3645-3653 (1989)
✓ BJ	Kramer, F.R. et al. "Evolution in vitro: sequence and phenotype of a mutant RNA resistant to Ethidium Bromide" <i>J. Mol. Biol.</i> 89: 719-736 (1974)
✓ BK	Latham, J.A. et al. "The application of a modified nucleotides in aptamer selection: novel thrombin aptamers containing 5-(1-Pentynyl)-2'-deoxyuridine" <i>Nucleic Acids Research</i> 22: 2817-2822( 1994)

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FORM PTO-1449 U.S. Department of Commerce Patent and Trademark Office	Docket No.: INVIT1250-5	Serial No.: 09/83,446 <b>RECEIVED</b>
Applicant(s): Jay M. Short		JUL 22 2003
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Filing Date: 04/12/2001	Group Art Unit: 1639

✓	BL	Lestienne , P and Bieth, J.G. "Inhibition of human leucocyte elastase by polynucleotides" <i>Biochimie</i> 65: 49-52 (1983)
✓	BM	Levisohn, R. and Spiegelman, S. "The Cloning of a self-replicating RNA molecule" <i>Proc. Natl. Acad. Sci. USA</i> 60: 866-872 (1968)
✓	BN	Levisohn, R. and Spiegelman, S. "Further extracellular Darwinian experiments with replicating RNA Molecules: diverse variants isolated under different selective conditions" <i>Proc. Natl. Acad. Sci. USA</i> 63:805-811 (1969)
✓	BO	Lorsch , J.R. and Szostak, J.W. "In Vitro Evolution of new ribozymes with polynucleotide kinase activity" <i>Nature</i> 371: 31-36 (1994)
✓	BP	Ma, M.Y. et al. " design and synthesis of RNA miniduplexes via a synthetic linker approach" <i>biochemistry</i>
Draft ✓	BQ	Maxam, A.M. and Gilbert, W. "A new method for sequencing DNA" <i>Proc. Natl. Acad. Sci. USA</i> 74: 560-564 (1977)
✓	BR	McCorkle, G.M. and Altman, S. "RNA's as catalysts" <i>Journal of Chemical Education</i> 64: 221-226 (1987)
✓	BS	Nelson , J et al. "Incorporation of a non-nucleotide bridge into hairpin oligonucleotides capable of high-affinity binding to the rev protein of HIV-1" <i>Biochemistry</i> 35:5339-5344 (1996)
✓	BT	Oleksyszyn, J. and Powers, J.C. " Irreversible inhibition of serine proteases by peptide derivatives of (a-Aminoalkyl)phosphonate diphenyl esters" <i>Biochemical and Biophysical Research Communications</i> 161: 143-149 (1989).
✓	BU	Oleksyszyn, J. and Powers, J.C. " Irreversible inhibition of serine proteases by peptide derivatives of (a-Aminoalkyl)phosphonate diphenyl esters" <i>Biochemistry</i> 30: 485-493 (1991)

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U.S. Department of Commerce Patent and  
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U.S. PATENT AND TRADEMARK OFFICE

Docket No.:

INVIT1250-5

Serial No.:

09/834,016

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Applicant(s):

Jay M. Short

Filing Date:

04/12/2001

Group Art Unit:

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INFORMATION DISCLOSURES  
STATEMENT BY APPLICANT

<input checked="" type="checkbox"/>	BV	Oliphant, A.R. et al. "Cloning of random-sequence oligodeoxynucleotides" <i>Gene</i> 44: 177-183 (1986)
<input checked="" type="checkbox"/>	BW	Oliphant, A.R. and Struhl, K. "The use of random-sequence oligonucleotides for determining consensus sequences" <i>Methods in Enzymology</i> 155: 568-582 (1987)
<input checked="" type="checkbox"/>	BX	Oliphant, A.R. and Struhl, K. "Defining the consensus of <i>E.Coli</i> . promoter elements by random selection" <i>Nucleic Acids Research</i> 16:7673-7683 (1988)
<input checked="" type="checkbox"/>	BY	Oliphant, A.R. et al. "Defining the sequence specificity of DNA-binding proteins by selecting binding sites from random-sequence oligonucleotides analysis of yeast GCN4 protein" <i>Mol. Cell. Biol.</i> 9:2944-2949 (1989)
<input checked="" type="checkbox"/>	BZ	Pan, T. and Unlenbeck, O.C. "In vitro selection of RNAs that undergo autolytic cleavage with Pb" <i>Biochemistry</i> 31: 3887-3895 (1992)
<input checked="" type="checkbox"/>	CA	Piccirilli, J.A. et al. "Aminoacyl esterase activity of the <i>Tetrahymena</i> Ribozyme" <i>Science</i> 256: 1420-1424 (1992)
<input checked="" type="checkbox"/>	CB	Prudent, J.R. et al. "Expanding the scope of RNA catalysis" <i>Science</i> 264: 1924-1927 (1994)
<i>Dup</i>	CC	Ren, X.F. et al. "Formation of stable DNA loops by incorporation of nonpolar, non-hydrogen-bonding nucleoside isosteres" <i>Angew. Chem. Int. Ed. Engl.</i> 35: 743-746 (1996)
<input checked="" type="checkbox"/>	CD	Robertson, D.L. and Joyce, G.F. "Selection <i>in vitro</i> of an RNA enzyme that specifically cleaves single-stranded DNA" <i>Nature</i> 344:467-468 (1990)
<input checked="" type="checkbox"/>	CE	Rudinger, J. "Peptide Hormones", <i>J.A. Parsons Ed.</i> , pgs. 1-6, June 1976.

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FORM PTO-1449 U.S. Department of Commerce Patent and Trademark Office		Docket No.: INVIT1250-5	Serial No.: 09/835,546
		Applicant(s): Jay M. Short	RECEIVED JUL 22 2003 TECH CENTER 1600/2900
		Filing Date: 04/12/2001	Group Art Unit: 1639
INFORMATION DISCLOSURE STATEMENT BY APPLICANT			

CD	Sakthivel, et al. "Expanding the potential of DNA for binding and catalysis: highly functionalized dUTP derivatives that are substrates for thermostable DNA polymerases" <i>Angew. Chem. Int. Ed.</i> 37 (20) : 2872-2875 (1998)
CE	Simon, S. et al "Inhibition of human neutrophil elastase by polyguanylic acid and other Synthetic polynucleotides" <i>Adv. Exp. Med. Biol.</i> 240: 65-74 (1988)
CF	Simon, S. et al "Inhibition of human neutrophil elastase by polyguanylic acid and other Synthetic RNA homopolymers" <i>Exp. Lung. Res.</i> 14: 85-99 (1988)
CG	Smith, et al. "In vitro selection without intervening amplification" <i>Angew. Chem. Int. Ed.</i> 36(17): 1879-1881 (1997)
CH	Soukup, G. et al. "Preparation of oligonucleotide-biotin conjugates with cleavable linkers" <i>Bioconjugate Chem.</i> 6: 135-138 (1995)
CI	Thiesen, H. and Bach, C. "Target detection assay(TDA): a versatile procedure to determine DNA binding sites as demonstrated on SP1 protein" <i>Nucleic Acids research</i> 18: 3203-3209 (1990)
CJ	Tuerk, C. and Gold, L. "Systematic evolution of ligands by exponential enrichment: RNA ligands to bacteriophage T4 DNA polymerase" <i>Science</i> 249:505-510 (1990)
CK	Tyagi, S. "Taking DNA probes into a protein world" <i>Nature Biotechnology</i> 14: 947-948 (1996)
CL	Vered, M. et al. "Inhibition of human neutrophil elastase by bacterial polyanions" <i>Exp. Lung. Res.</i> 14: 67-83 (1988)
CM	Vlasova, I.E. and Vlasov, V.V "Molecular evolution: design of nucleic acids possessing Catalytic properties and capable of specific complex formation" <i>Molecular Biology</i> 27: 1-5 (1993)
CN	Wiegand, T. et al. "Selection of RNA amides synthases" <i>Chemistry &amp; Biology</i> 4:675-683 (1997)

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	CO	Xu, W. and Ellington, A "Anti-peptide aptarmers recognize amino sequence and bind a protein epitope" <i>Proc. Natl. Acad. Sci. USA</i> 93: 7475-7480 (1996)
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